AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1	1-90 (Canceled)
1	91. (New) A method of caching a data object, comprising:
2	receiving at a first cache of a plurality of cooperating caches a first data
3	object of a domain of data objects;
4	if said first data object is owned by the first cache, storing said first data
5	object as primary content in the first cache; and
6	if said first data object is owned by another cache in the plurality of
7	caches, determining on the basis of a set of dynamic criteria whether to store said
8	first data object as secondary content in the first cache;
9	wherein said first data object is owned by one and only one of the plurality
10	of caches; and
11	wherein a ratio between primary content and secondary content in the first
12	cache is allowed to fluctuate.
1	92. (New) The method of claim 91, further comprising:
2	identifying one of the plurality of caches as the owner of said first data
3	object.
1	93. (New) The method of claim 92, wherein said identifying comprises:
2	hashing an identifier of said first data object to produce a hash value; and

3	mapping said hash value to one of said plurality of caches.
1	94. (New) The method of claim 91, wherein said receiving comprises
2	receiving said first data object from said other cache in the plurality of caches.
1	95. (New) The method of claim 91, wherein said set of dynamic criteria
2	includes a popularity of said first data object.
1	96. (New) The method of claim 91, wherein said set of dynamic criteria
2	includes a utilization of the first cache.
1	97. (New) The method of claim 91, wherein said set of dynamic criteria
2	includes a size of said first data object.
1	98. (New) The method of claim 91, further comprising:
2	removing a cached data object from the first cache;
3	wherein said cached data object is selected based on one or more criteri
1	99. (New) The method of claim 98, wherein said one or more criteria
2	include popularity;
3	wherein said popularity is measured as one or more of:
4	a number of requests for said cached data object; and
5	a frequency of requests for said cached data object.
1	100. (New) The method of claim 98, wherein said one or more criteria
2	include validity.

1	101. (New) The method of claim 98, wherein said one or more criteria
2	include age.
1	102. (New) The method of claim 98, wherein said one or more criteria
2	include size.
1	103. (New) The method of claim 98, wherein said one or more criteria
2	include ownership.
1	104. (New) The method of claim 98, wherein said one or more criteria
2	include a cost of retrieving said cached data object from one of an origin server
3	and a second cache in the plurality of caches.
1	105. (New) The method of claim 98, wherein said one or more criteria
2	include a level of storage input/output activity at the first cache.
1	106. (New) The method of claim 98, wherein said one or more criteria
2	include a level of communication activity at the first cache.
1	107. (New) The method of claim 98, wherein said one or more criteria
2	include a level of processor activity at the first cache.
1	108. (New) The method of claim 91, further comprising:
2	propagating invalidation of said first data object between the first cache
3	and a second cache.

109. (New) The method of claim 91, further comprising:

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2	exchanging a configuration of the plurality of cooperating caches between
3	the first cache and a second cache.
1	110. (New) The method of claim 91, further comprising:
2	re-configuring ownership of the domain of data objects in response to the
3	removal of a cache from the plurality of cooperating caches.
1	111. (New) The method of claim 91, further comprising:
2	re-configuring ownership of the domain of data objects in response to the
3	addition of a cache to the plurality of cooperating caches.
1	112. (New) A computer readable storage medium storing instructions that,
2	when executed by a computer, cause the computer to perform a method of caching
3	a data object, the method comprising:
4	receiving at a first cache of a plurality of cooperating caches a first data
5	object of a domain of data objects;
6	if said first data object is owned by the first cache, storing said first data
7	object as primary content in the first cache; and
8	if said first data object is owned by another cache in the plurality of
9	caches, determining on the basis of a set of dynamic criteria whether to store said
10	first data object as secondary content in the first cache;
11	wherein said first data object is owned by one and only one of the plurality
12	of caches; and
13	wherein a ratio between primary content and secondary content in the first
14	cache is allowed to fluctuate.
1	113. (New) A method of caching data objects in a plurality of cooperating
2	caches, comprising:

3	partitioning a set of data objects among a plurality of cooperating caches,
4	wherein each of said caches receives ownership of a subset of said data objects;
5	caching one or more data objects of a first subset of said data objects at a
6	first cache having ownership of said first subset;
7	caching one or more data objects of a second subset of said data objects at
8	the first cache, wherein a second cache in the cluster owns said second subset;
9	wherein a ratio between the first subset and the second subset in the first
10	cache is allowed to fluctuate;
11	receiving at the first cache a first request for a first data object in said
12	second subset of data objects;
13	receiving said first data object from the second cache; and
14	caching said first data object at the first cache only if said first data object
15	satisfies one or more of a predetermined set of criteria.
1	114. (New) The method of claim 113, wherein said caching said first data
2	object comprises caching said first data object if said first data object has a
3	threshold level of popularity.
1	115. (New) The method of claim 113, wherein said caching said first data
2	object comprises caching said first data object if the first cache has capacity to
3	cache said first data object without first removing another data object.
1	116. (New) The method of claim 113, further comprising:
2	removing one or more cached data objects from the first cache, wherein a
3	subset of said set of criteria is used to select said one or more cached data objects
1	117. (New) The method of claim 113, wherein said predetermined set of
2	criteria includes a popularity of said first data object.

1	118. (New) The method of claim 113, wherein said predetermined set of
2	criteria includes a validity of said first data object.
1	119. (New) The method of claim 113, wherein said predetermined set of
2	criteria includes a size of said first data object.
1	120. (New) The method of claim 113, wherein said predetermined set of
2	criteria includes an age of said first data object.
1	121. (New) The method of claim 113, wherein said predetermined set of
2	criteria includes a cost of retrieving said first data object from an origin server.
1	122. (New) The method of claim 113, wherein said predetermined set of
2	criteria includes a measure of the utilization of the first cache.
1	123. (New) The method of claim 113, further comprising:
2	receiving an invalidation message regarding said first data object at one of
3	the first cache and the second cache; and
4	communicating said invalidation to the other of the second cache and the
5	first cache.
1	124. (New) The method of claim 113, further comprising:
2	automatically re-partitioning ownership of the set of data objects upon
3	failure of one of the cooperating caches.
1	125. (New) The method of claim 113, further comprising:
2	automatically re-partitioning ownership of the set of data objects upon the
3	addition of a cache to the plurality of cooperating caches.

1	126. (New) A computer readable storage medium storing instructions that,
2	when executed by a computer, cause the computer to perform a method of caching
3	data objects in a plurality of cooperating caches, the method comprising:
4	partitioning a set of data objects among a plurality of cooperating caches,
5	wherein each of said caches receives ownership of a subset of said data objects;
6	caching one or more data objects of a first subset of said data objects at a
7	first cache having ownership of said first subset;
8	caching one or more data objects of a second subset of said data objects at
9	the first cache, wherein a second cache in the cluster owns said second subset;
10	receiving at a first cache of a plurality of cooperating caches a first data
11	object of a domain of data objects;
12	if said first data object is owned by the first cache, storing said first data
13	object as primary content in the first cache; and
14	if said first data object is owned by another cache in the plurality of
15	caches, determining on the basis of a set of dynamic criteria whether to store said
16	first data object as secondary content in the first cache;
17	wherein said first data object is owned by one and only one of the plurality
18	of caches; and
19	wherein a ratio between primary content and secondary content in the first
20	cache is allowed to fluctuate;
21	receiving at the first cache a first request for a first data object in said
22	second subset of data objects;
23	receiving said first data object from the second cache; and
24	caching said first data object at the first cache only if said first data object
25	satisfies one or more of a predetermined set of criteria.
1	127. (New) A method of caching data objects in a plurality of cooperating

caches, comprising:

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3	partitioning a domain of data objects among a plurality of cooperating
4	caches, wherein a first cache receives ownership of a first subset of said data
5	objects;
6	caching one or more members of said first subset of data objects at the first
7	cache;
8	caching one or more members of a second subset of data objects at the first
9	cache, wherein a second cache owns said second subset of data objects;
10	wherein a ratio of members of the first subset to members of the second
11	subset is allowed to fluctuate and
12	removing a first cached data object from said first cache, wherein said first
13	data object is identified by applying a predetermined set of criteria.
1	128. (New) The method of claim 127, wherein said predetermined set of
2	criteria includes data object popularity.
1	129. (New) The method of claim 127, wherein said predetermined set of
2	criteria includes data object validity.
1	130. (New) The method of claim 127, wherein said predetermined set of
2	criteria includes data object size.
1	131. (New) The method of claim 127, wherein said predetermined set of
2	criteria includes data object age.
1	132. (New) The method of claim 127, wherein said predetermined set of
2	criteria includes data object ownership.

1	133. (New) The method of claim 127, wherein said predetermined set of
2	criteria includes a cost of retrieving a data object from an origin server.
1	134. (New) The method of claim 127, wherein said predetermined set of
2	criteria includes a measure of the utilization of the first cache.
1	135. (New) The method of claim 127, further comprising:
2	receiving at the first cache an invalidation message regarding a data object
3	cached in the first cache; and
4	communicating said invalidation of said data object to another cache.
1	136. (New) A computer readable storage medium storing instructions that,
2	when executed by a computer, cause the computer to perform a method of caching
3	data objects in a plurality of cooperating caches, the method comprising:
4	partitioning a domain of data objects among a plurality of cooperating
5	caches, wherein a first cache receives ownership of a first subset of said data
6	objects;
7	caching one or more members of said first subset of data objects at the first
8	cache;
9	caching one or more members of a second subset of data objects at the first
10	cache, wherein a second cache owns said second subset of data objects;
11	wherein a ratio between primary content and secondary content in the first
12	cache is allowed to fluctuate; and
13	removing a first cached data object from said first cache, wherein said first
14	data object is identified by applying a predetermined set of criteria.

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137. (New) A hybrid cache, comprising:

2	a cache engine configured to cache a first subset of a domain of data
3	objects, wherein ownership of said first subset of data objects is assigned to the
4	hybrid cache;
5	a monitor configured to monitor an operational status of the hybrid cache;
6	an administrator configured to facilitate administration of the hybrid
7	cache; and
8	communication links coupling the hybrid cache to one or more other
9	hybrid caches;
10	wherein said cache engine is further configured to cache a second subset of
11	a domain of data objects owned by a second hybrid cache if said second data
12	object satisfies a set of dynamic criteria;
13	wherein a ratio between the first subset of data objects and the second
14	subset of data objects in the first cache is allowed to fluctuate.
1	138. (New) The hybrid cache of claim 137, wherein said domain of data
2	objects is partitioned among the hybrid cache and the other hybrid caches such
3	that each said cacheable data object is owned by just one of the hybrid caches.
1	139. (New) The hybrid cache of claim 137, wherein said dynamic criteria
2	include one or more of: popularity, validity, age, size, ownership and cost of
3	retrieving said second data object.
1	140. (New) The hybrid cache of claim 137, wherein one or more of said
2	cache engine and said monitor are configured to report the invalidation of said
3	second data object to the second hybrid cache.
1	141. (New) A cluster of hybrid caches, comprising:
2	a plurality of hybrid caches;

3	a set of data objects, wherein ownership of said data objects is partitioned
4	among said hybrid caches; and
5	a set of criteria for applying to determine whether to cache as primary
6	content at a first hybrid cache a data object owned by a second hybrid cache;
7	wherein each of said hybrid caches is configured to always cache a first
8	received data object that it owns and to apply said set of criteria to determine
9	whether to cache a second received data object as secondary content that belongs
10	to a different hybrid cache;
11	wherein a ratio between primary content and secondary content in the first
12	cache is allowed to fluctuate;.